PERMUTATION AND COMBINATION

1. How many words can be formed by re-arranging the letters of the word ASCENT such that A and T occupy the first and last position respectively?
A)5!
B)4!
C)6! - 2!
D)6! / 2!

2. There are 2 brothers among a group of 20 persons. In how many ways can the group be arranged around a circle so that there is exactly one person between the two brothers?
A) 2 * 19!
B)18! * 18
C) 19! * 18
D)2 * 18!

3. There are 12 yes or no questions. How many ways can these be answered?
A) 1024
B) 2048
C) 4096
D)144

4. How many ways can 4 prizes be given away to 3 boys, if each boy is eligible for all the prizes?
A) 256
B) 12
C) 81
D) None of these

5. A team of 8 students goes on an excursion, in two cars, of which one can seat 5 and the other only 4. In how many ways can they travel?
A) 9
B)26
C)126
D) 3920

6. How many numbers are there between 100 and 1000 such that at least one of their digits is 6?
A) 648
B) 258
C) 654
D)252

7. How many ways can 10 letters be posted in 5 post boxes, if each of the post boxes can take more than 10 letters?
A) 510
B) 105
C) 10P5
D) 10C5

8. In how many ways can the letters of the word EDUCATION be rearranged so that the relative position of the vowels and consonants remain the same as in the word EDUCATION?
A) 9!/4
B) 9!/(4!*5!)
C) 4!*5!
D) None of these

9. In how many ways can 15 people be seated around two round tables with seating capacities of 7 and 8 people?
A) 15!/(8!)
B) 7!*8!
C) (15C8)*6!*7!
D)2*(15C7)*6!*7!

10. If the letters of the word CHASM are rearranged to form 5 letter words such that none of the word repeat and the results arranged in ascending order as in a dictionary what is the rank of the word CHASM?
A) 24
B)31
C) 32
D)30

11. How many words of 4 consonants and 3 vowels can be made from 12 consonants and 4 vowels, if all the letters are different?
A) 16C7 * 7!
B) 12C4 * 4C3 * 7!
C) 12C3 * 4C4
D) 12C4 * 4C3

12. In how many ways can 5 letters be posted in 3 post boxes, if any number of letters can be posted in all of the three post boxes?
A) 5C3
B) 5P3
C) 53
D)35

13. How many number of times will the digit '7' be written when listing the integers from 1 to 1000?
A) 271
B) 300
C) 252
D)304

14. There are 6 boxes numbered 1, 2,...6. Each box is to be filled up either with a red or a green ball in such a way that at least 1 box contains a green ball and the boxes containing green balls are consecutively numbered. The total number of ways in which this can be done is
A) 5
B) 21
C) 33
D) 60

15. What is the value of 1*1! + 2*2! + 3!*3! + ... n*n!, where n! means n factorial or n(n-A(n-2)...1
A) n(n-A(n-A!))
B) (n+A!)/(n(n-A))
C) (n+A! - n!) D) (n + A! - 1!)